

KEY POINTS

1. **Chest radiograph screening:** From 2000 through 2007 more than 7300 persons had one or more screening chest radiograph as part of Libby, MT screening activities.
 2. **Screening vs. Diagnosis:** Findings on screening chest radiographs are not diagnostic. Persons with findings on radiographs are referred to physician for medical evaluation and diagnosis(es).
 3. **Pleural findings (“consistent with pneumoconiosis”):** A relatively high proportion of persons screened have had pleural findings.
 4. **Findings in 2000-2001 and 2003-2007:** The prevalence of findings differed in two time periods (2000-2001; 2003-2007). Several factors are potentially related to this difference.
 5. **Public health prevention opportunities:** Several important public health prevention opportunities exist for persons in Lincoln County.
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INFORMATION POINTS FOR MEETINGS IN LIBBY, MONTANA, APRIL 10, 2008

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A. Findings from chest radiograph screening for persons from Libby, MT in 2 time periods [2000-2001 and 2003-2007]: Persons screened and results of chest radiograph readings

1. Persons screened

- a. 2000-2001: 6668 persons; **average age 50 years** (median age 50, range 16 to 94)
- b. 2003-2007: 2954 persons; **average age 55 years** (median age 56, range 12 to >100)
- c. Three potential “exposure” categories: Worker, Contact of Worker, Resident

2. Chest radiograph reading

- a. **Findings NOT diagnostic:** Findings on screening radiographs are not diagnostic. Persons whose chest radiographs have findings are referred for further medical work-up and diagnosis(es)
- b. 2000-2001: each chest radiograph was read by at least 2 radiologists (and a 3rd if the first 2 did not agree); all radiologists were qualified B- readers
- c. 2003-2007: each chest radiograph was read by 1 radiologist; radiologist was qualified B-reader

3. Results of chest radiograph readings

- a. Pleural: “Any pleural abnormality consistent with pneumoconiosis” [Determined by at least 2 of 3 B- readers in 2000-2001 or 1 B- reader in 2003-2007. If person was screened more than once, result from last chest radiograph was used.]
- b. Interstitial: Profusion levels read on an internationally recognized scale, the 9 step ILO scale. [I will present results by dividing this scale into two categories: Borderline (0/1, 1/0), and $\geq 1/1$.]

FIGURE X: ILO Reading Scale for Interstitial findings

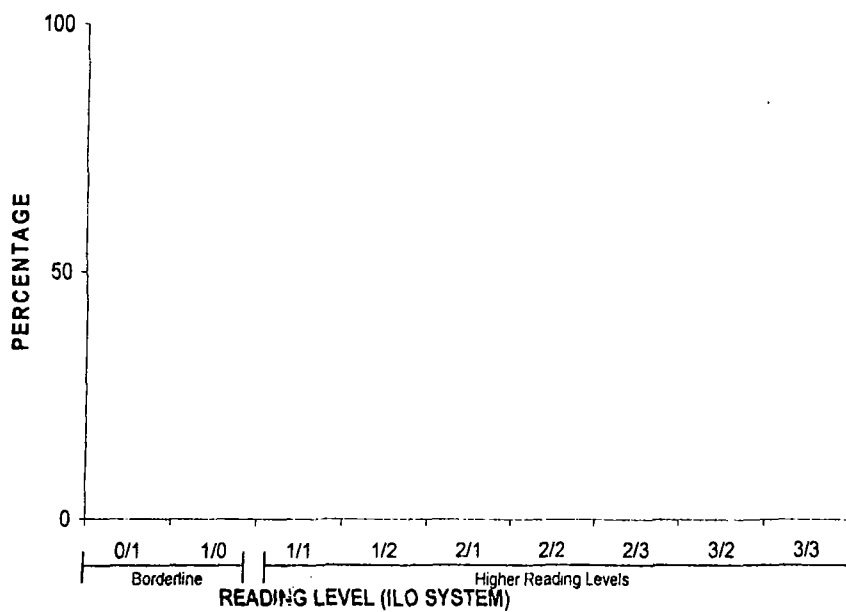
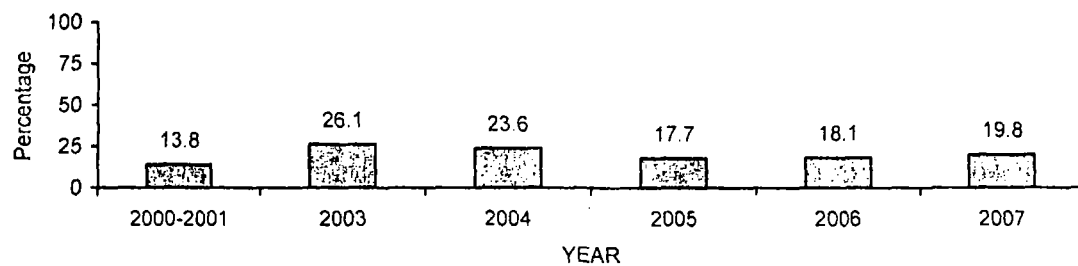


Table 1: Chest radiograph findings during two screening periods [baseline: 2000-2001; subsequent: 2003-2007] in persons screened in Libby, MT

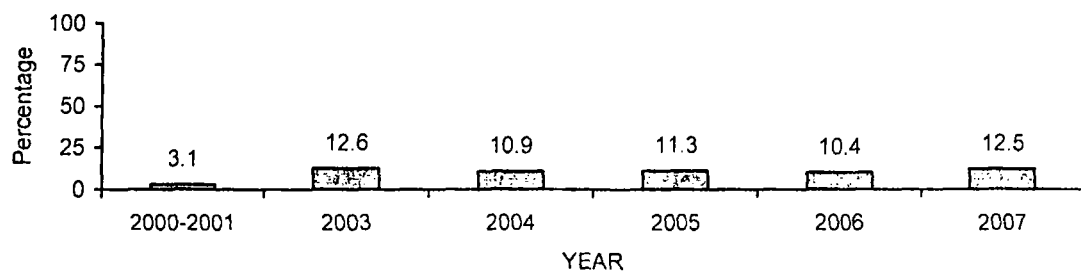
<u>Radiograph Finding</u>	<u>% with finding</u>
Pleural	
baseline	13.8 (917/6668)
subsequent	19.6 (580/2954)
Interstitial: borderline	
baseline	3.1 (206/6668)
subsequent	13.2 (391/2954)
Interstitial: $\geq 1/1$	
baseline	1.5 (98/6668)
subsequent	4.2 (123/2954)

FIGURE 1: Chest radiograph findings during two screening periods [baseline: 2000-2001; subsequent: 2003-2007] in persons screened in Libby, MT, finding by year

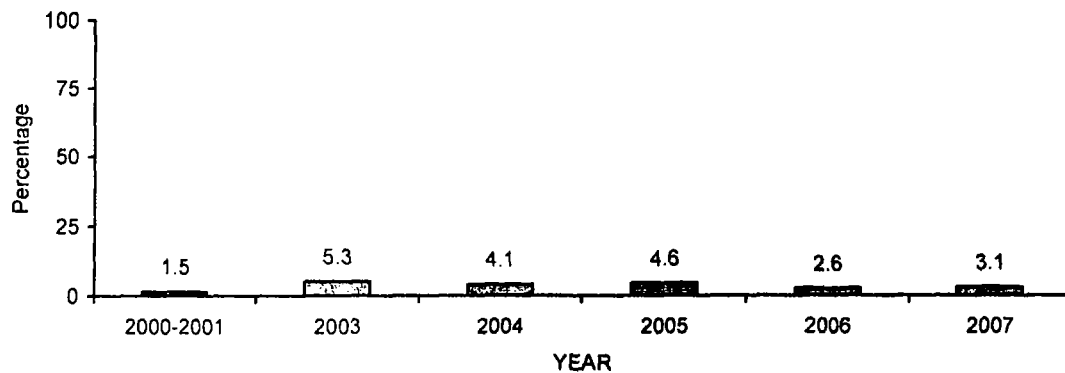
a. Pleural finding



b. Interstitial border finding



c. Interstitial \geq 1/1 finding



B. Which groups of persons are at risk for chest radiograph findings?

1. Results of chest radiograph readings

- a. By potential “exposure” categories: Table 2
- b. Age and sex characteristics: Tables 3,4

2. Persons screened during both time periods

- a. Of the 6668 persons screened during 2000-2001, 2240 were also screened during 2003-2007
- b. Of these 2240 persons, the proportion with chest radiograph findings in 2000-2001 and in 2003-2007 is shown on Figure 2

TABLE 2: Chest radiograph findings during two screening periods [baseline: 2000-2001; subsequent: 2003-2007] in persons screened in Libby, MT, by exposure category

Radiograph Finding	Exposure Category: % with finding		
	Worker % (n/N)	Contact of Worker % (n/N)	Resident % (n/N)
Pleural			
baseline	44.4 (162/365)	19.0 (237/1248)	10.2 (518/5055)
subsequent	53.3 (72/135)	24.4 (129/528)	16.5 (379/2291)
Interstitial: borderline			
baseline	6.0 (22/365)	3.3 (41/1248)	2.8 (143/5055)
subsequent	31.1 (42/135)	11.7 (62/528)	12.5 (287/2291)
Interstitial: $\geq 1/1$			
baseline	6.0 (22/365)	1.5 (19/1248)	1.1 (57/5055)
subsequent	13.3 (18/135)	2.5 (13/528)	4.0 (92/2291)

TABLE 3: Age (in years) of persons with chest radiograph findings during two screening periods [baseline: 2000-2001; subsequent: 2003-2007] in Libby, MT, by finding and exposure categories

Radiograph Finding	Exposure Category		
	Worker Avg age (range)	Contact of Worker Avg age (range)	Resident Avg age (range)
Pleural			
baseline	57.5 (30-91)	49.7 (18-90)	49.8 (17-94)
subsequent	65.2 (45-95)	60.5 (28-94)	63.3 (22-89)
Interstitial: borderline			
baseline	65.3 (47-84)	62.4 (36-87)	64.6 (24-90)
subsequent	64.5 (48-87)	60.2 (40-91)	64.9 (21-93)
Interstitial: $\geq 1/1$			
baseline	70.4 (56-91)	69.1 (47-88)	71.1 (36-92)
subsequent	76.2 (61-95)	63.6 (37-74)	69.1 (40->100)

TABLE 4: Sex of persons with chest radiograph findings during two screening periods [baseline: 2000-2001; subsequent: 2003-2007] in Libby, MT, by finding and exposure categories

Radiograph Finding	Exposure Category		
	Worker % men	Contact of Worker % men	Resident % men
Pleural			
baseline	92	35	50
subsequent	90	36	49
Interstitial: borderline			
baseline	100	46	74
subsequent	100	48	74
Interstitial: $\geq 1/1$			
baseline	95	53	63
subsequent	95	56	64

FIGURE 2: Of persons screened in both time periods (n=2240), the proportion with chest radiograph finding at baseline [2000-2001] and subsequent [2003-2007] period

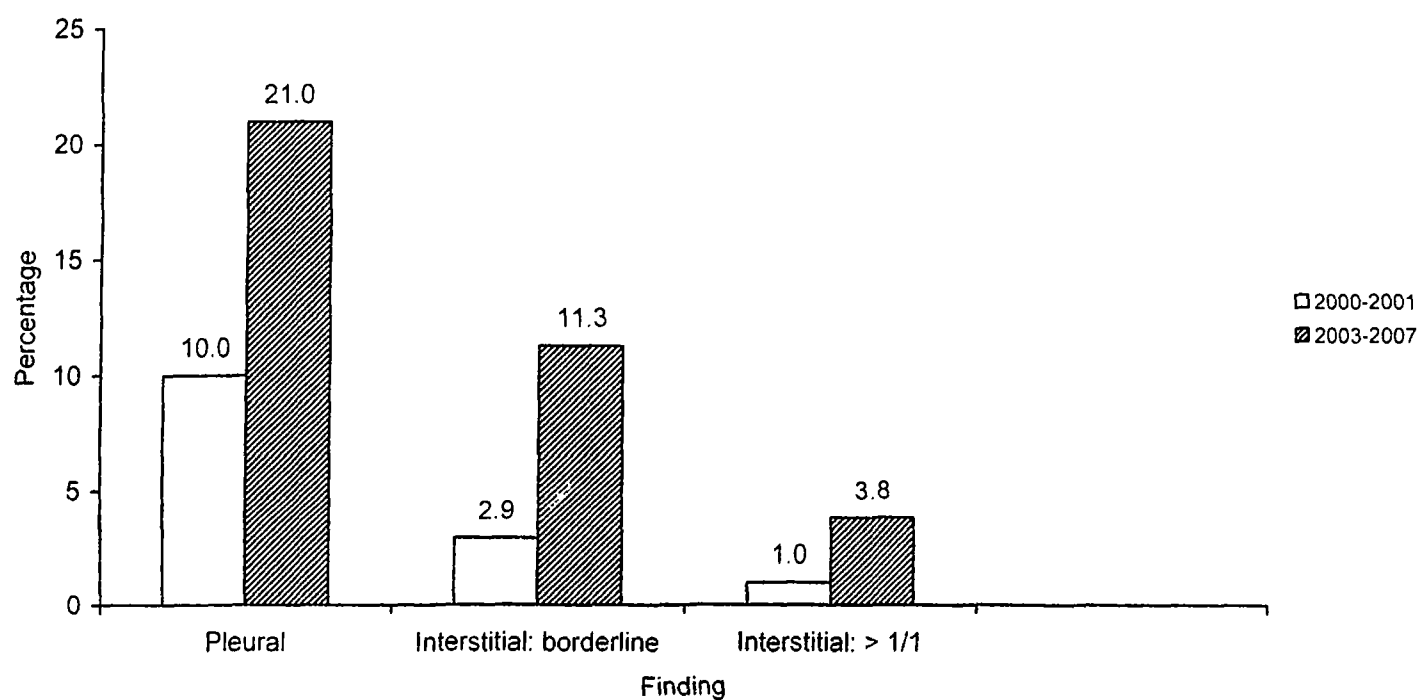


Table 5: Concordance between chest radiograph readings in baseline (2000-2001) and subsequent (2003-2007) time periods for persons with chest radiographs read in both periods (N=2240)

Radiograph finding	Baseline +		Baseline -	
	Subsequent +	Subsequent -	Subsequent +	Subsequent -
Pleural				
Baseline + = 225	174	51	297	1718
Baseline - = 2015				
Interstitial: borderline				
Baseline + = 65	16	49	238	1937
Baseline - = 2175				
Interstitial: $\geq 1/1$				
Baseline + = 23	11	12	73	2144
Baseline - = 2217				

C. Prevention opportunities to improve the health of persons in Lincoln County

1. Population of Lincoln County: approx 19,000 (2004 estimate); median age 45 years
2. Behavioral Risk Factor Surveillance System (BRFSS): 556 respondents from Lincoln County in 2003-2006 [CAUTION: comparing BRFSS prevalence estimates between/among geographic areas may be affected by differing age/sex/race/ proportions between/among populations]
3. Birth records: 511 live births in 2004-2006

TABLE 7: Prevention opportunities to improve the health of persons in Lincoln County, Montana: **Examples**

<u>Issue That Needs Attention</u>	<u>Prevalence of Condition in Adults</u>		
	Lincoln Co (2003-2006)	Montana (2003-2006)	U.S. (2006)
SMOKING			
▪ Currently smoking	24%	20%	20%
▪ Smoking in pregnancy	23%	18%	11%
	(2004-2006)	(2004-2006)	(2003)
PHYSICAL ACTIVITY			
▪ No leisure time physical activity	21%	20%	23%
▪ Overweight	42%	37%	37%
CANCER SCREENING			
▪ Mammogram in past 2 yr. (women ≥ 40)	62%	72%	77%
▪ Sigmoidoscopy or colonoscopy – ever (persons ≥ 50)	51%	53%	57%
ADULT IMMUNIZATIONS			
▪ Influenza in past year (persons ≥ 65)	66%	72%	70%
▪ Pneumococcal – ever (persons ≥ 65)	67%	71%	67%
ACCESS TO HEALTH CARE			
▪ No usual primary care provider	34%	26%	
▪ Could not see physician due to cost in past year	22%	13%	
HEALTH STATUS			
▪ Self-reported fair or poor health status	21%	13%	15%

CAUTION: Comparing BRFSS prevalence estimates between/among populations in geographic areas may be affected by differing age/sex/race proportions between/among those populations. The data presented on this table are intended to stimulate discussion and prevention efforts in Lincoln County. No statistical comparisons are intended.